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Ethnobotanical knowledge of the Kuy and Khmer people in Prey Lang, Cambodia

Nerea TURREIRA-GARCIA^{1,*}, Dimitrios ARGYRIOU¹, CHHANG Phourin², Prachaya SRISANGA³ & Ida THEILADE^{1,*}

¹ Department of Food and Resource Economics, University of Copenhagen, Rolighedsvej 25, 1958 Frederiksberg, Denmark.

² Forest and Wildlife Research Institute, Forestry Administration, Hanoi Street 1019, Phum Rongchak, Sangkat Phnom Penh Tmei, Khan Sen Sok, Phnom Penh, Cambodia.

³ Herbarium, Queen Sirikit Botanic Garden, P.O. Box 7, Maerim, Chiang Mai 50180, Thailand.

* Corresponding authors. Email n.turreira@gmail.com, idat@ifro.ku.dk

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មូលន័យសង្ខេប

ជនជាតិដើមភាគតិច និង សហគមន៍ដែលពឹងផ្អែកលើព្រៃឈើត្រូវបានគេដឹងថាមានចំណេះដឹងពិសេស លើធនធានធម្មជាតិនៅជុំវិញតំបន់ពួកគេរស់នៅ។ ទោះជាយ៉ាងណាការខូចបរិស្ថានបានបន្ថយកម្រិតធនធានធម្មជាតិដែលធ្លាប់មាន និង គំរាមកំហែងដល់ភាពបន្តមាននៃជីវប្បធម៌របស់ជនជាតិដើមនិងប្រជាជនក្នុងតំបន់ទូទាំងពិភពលោក។ ការសិក្សានេះបានចងក្រងឯកសាររុក្ខជាតិដែលប្រើប្រាស់ដោយប្រជាជនរស់នៅជុំវិញតំបន់ព្រៃទំនាបសេសសល់ចុងក្រោយមួយក្នុងប្រទេសកម្ពុជា។ ការប្រមូលទិន្នន័យបានធ្វើនៅចន្លោះឆ្នាំ២០១៤ និង ២០១៦។ ការធ្វើផែនទីសិក្សាដោយមានការចូលរួមពីសមាជិកសហគមន៍និងមានការប្រមូលគំនិតដោយសេរី (free-listing) ជាមួយប្រជាជនចំនួន៣១នាក់ អ្នកប្រមូលរុក្ខជាតិនិងការពិភាក្សាជាមួយក្រុមគោលដៅចំនួន១២នាក់ ត្រូវបានធ្វើក្នុងភូមិចំនួនបីក្នុងខេត្តព្រះវិហារនិងស្ទឹងត្រែង។ សរុបមានរុក្ខជាតិដែលគេនិយមប្រើចំនួន៣៧ប្រភេទ ដែលត្រូវបានកត់ត្រា ក្នុងនោះ៩០% ត្រូវបានប្រមូល និង ធ្វើចំណែកថ្នាក់។ ប្រភេទទាំងនេះភាគច្រើនត្រូវបានប្រើប្រាស់ជាឱសថ(៦៧%) អាហារ(៤៤%)និងជាសម្ភារៈប្រើប្រាស់(៣៧%) ហើយភាគច្រើនប្រភេទត្រូវបានប្រើប្រាស់ច្រើនយ៉ាង។ ធនធានព្រៃឈើដែលសំខាន់ជាងគេសម្រាប់ជនជាតិភូមិគឺជាប្រភេទឈើផ្តល់ជីវនៃពូក *Dipterocarpus* ដែលត្រូវបានចាត់ក្នុងប្រភេទរងគ្រោះដោយអង្គការIUCN។ បុរសនិងស្ត្រីបានស្គាល់ប្រភេទរុក្ខជាតិដែលមានប្រយោជន៍ក្នុងចំនួនប្រហាក់ប្រហែលគ្នា ហើយមានរបៀបនៃការប្រើប្រាស់ខុសគ្នា (បុរសប្រមូលប្រភេទរុក្ខជាតិដូចគ្នាទៅនឹងប្រភេទដែលស្ត្រីប្រើប្រាស់)។ មានរបាយការណ៍ជាច្រើនស្តីពីប្រភេទរុក្ខជាតិមានប្រយោជន៍ដែលបង្ហាញពីប្រភេទដែលផ្តល់សារៈសំខាន់ផ្នែកសេដ្ឋកិច្ចនិងវប្បធម៌ ព្រមទាំងស្ថានភាពរបាយ និង អភិរក្ស។ ការអភិរក្សព្រៃឈើពិតជាមានសារៈសំខាន់ក្នុងការទ្រទ្រង់ជីវភាព និង ចំណេះដឹងពាក់ព័ន្ធនឹងរុក្ខជាតិនិងមនុស្សនៃប្រជាជនក្នុងតំបន់ និង ជនជាតិដើមនៅព្រៃឡង់។

Abstract

Indigenous peoples and forest-dependent communities are known to hold unique knowledge on natural resources in their surrounding environment. However, environmental degradation has diminished the availability of natural resources and threatens the bio-cultural survival of indigenous and local people world-wide. This study documented the plants used by people living in the vicinity of one of Cambodia's last remaining lowland rainforests. Fieldwork took

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place between 2014 and 2016. Participatory mapping exercises and ‘free-listings’ with 31 informants and participatory botanical collections and focus group discussions with 12 key informants were conducted across three villages in the Preah Vihear and Stung Treng provinces. A total of 374 useful ‘folk taxa’ were recorded, 90% of which were collected and identified. These species were mostly used as medicine (67%), food (44%) and/or materials (37%) with many species having multiple uses. The most important forest resources for the Kuy people were resin trees of the genus *Dipterocarpus*, some of which are listed as Endangered by IUCN. Men and women knew similar numbers of useful plants and played different roles in relation to these. Given the many useful plants reported, the indication of culturally and economically important species, and their distribution and conservation status, forest conservation appears to be essential to maintain the livelihoods and associated ethnobotanical knowledge of local and indigenous people in Prey Lang.

Keywords

Bio-cultural diversity, knowledge loss, Kuy, Kuoy, local ecological knowledge, participatory plant collection, Prey Long, traditional ecological knowledge.

Introduction

Indigenous peoples and forest-dependent people in general hold a unique knowledge on natural resources in their surrounding environment (Martin, 2004). Among other things, their knowledge about plants useful for medicine, food, and construction improves their resilience to adversity. Worldwide, deforestation threatens the availability of natural resources useful for forest-dependent people, placing their bio-cultural survival under pressure. Ethnobotanical knowledge is directly related to the use of plant resources (Gadgil *et al.*, 1993): if a plant is no longer available, it cannot be used and knowledge related to it may disappear. Under rapidly changing socio-economic, political and environmental conditions, knowledge related to the use of natural resources can be lost within a single generation (Reyes-García *et al.*, 2013), especially given that ethnobotanical knowledge is usually orally transmitted and rarely documented (Case *et al.*, 2005; Turreira-García *et al.*, 2015). Documentation of ethnobotanical knowledge consequently provides an ancestral legacy for current and future generations. Ethnobotanical knowledge can also serve as an indicator of biodiversity (Salick *et al.*, 1999) and as a measure of dependency upon the surrounding environment (Araújo & Lopes, 2011).

There is a growing trend in employing local people as parataxonomists to provide biodiversity inventories (Janzen, 2004; Janzen & Hallwachs 2011; Zhao *et al.*, 2016) and local knowledge is increasingly used in ecological and conservation research and monitoring. Local people are rarely actively involved in the research process, however (Brook & McLachlan, 2008). According to a recent review on the status of ethnobiology in Southeast Asia, Cambodia is one of the least researched countries (Hidayati *et al.*, 2015) with only 13 ethnobiological publi-

cations between 1960 and 2014. Our reviews of recent ethnobotanical studies in Cambodia, Thailand, Vietnam, and Laos also reveal that most studies have been undertaken in Thailand and have mainly focussed on medicinal plants (Table 1). (Only studies that focused on ethnic groups and included (semi-)wild plants were taken into account. Studies that did not encompass local people’s knowledge, reviewed only one species or strictly inventoried homegardens were excluded). The only ethnobotanical studies involving the Kuy people in the literature were one Master’s thesis about *materia medica* employed by Kuy healers in Thailand, which documented the use of 333 medicinal plants (Virapongse, 2006), and a study of medicinal plants used for postpartum ailments (Grape *et al.*, 2016).

Prey Lang (‘our forest’ in Kuy language) covers 530,000 ha in the central plains of Cambodia and is considered the last intact lowland rainforest in mainland Indochina (MacDonald, 2004). In May 2016, 432,000 ha of Prey Lang were gazetted as a wildlife sanctuary. However, 4,700 ha of this area is affected by economic land concessions and mining concessions (Argyriou *et al.*, 2016) and about 50,000 ha of forests bordering the sanctuary are impacted by 53 concessions for agro-businesses (LICADHO, 2016). Forest clearance within and nearby these concessions and rampant illegal logging throughout Prey Lang threaten its biodiversity and natural resources (Olsson & Emmett, 2007). An estimated 250,000 villagers also live in the vicinity of Prey Lang and depend on it for their livelihoods (Hüls Dyrmosse *et al.*, in press) and culture.

The aims of our study were to: i) document the ethnobotanical knowledge of Kuy and Khmer people living nearby the Prey Lang forests (specifically regarding forest types, important natural resources, useful plants

Table 1 Previous ethnobotanical studies in Indochina based on searches made in Scopus, Web of Science and the Royal Library of Denmark and Copenhagen library services on 16 March 2017. UC = Plant use category (WEP = wild edible plants; MED = general medicine; DSD = digestive system disorder; CI= cognitive impairment; WH = women's healthcare; REP = repellents and pesticides); Spp. = Number of species (not necessarily scientifically recognized species); Vill. = Number of villages; Inf. = Number of informants; n.s. = not stated; * = Includes cultivated species.

Reference	Ethnic group (Country)	UC	Spp.	Vill.	Inf.	Vegetation
Grape <i>et al.</i> (2016)	Kuy (Cambodia)	MED, WH	68	4	50	Evergreen, semi-evergreen & deciduous dipterocarp forest
Chassagne <i>et al.</i> (2016)	Buong (Cambodia)	MED	214	28	202	Savanna, evergreen, semi-evergreen, deciduous dipterocarp & bamboo forest
Whitney <i>et al.</i> (2016)	Dao, Hmon, Kinh, Ma-Lieng, Sach, Tai, Tay, Xinh-Mun (Vietnam)	n.s.	111	5	n.s.	n.s.
Cruz-Garcia & Struik (2015)	Isaan (Thailand)	WEP	20	1	7	Dry monsoon forest (dipterocarp forest)
Tangjitman <i>et al.</i> (2015)	Karen (Thailand)	MED, DSD	36	6	178	Deciduous, tropical evergreen & dry dipterocarp forest
Neamsuvan <i>et al.</i> (2015)	n.s. (Thailand)	MED	95	7	7	Mangrove & swamp forest
Offringa (2015)	Khon Muang (Thailand)	MED, CI	n.s.	n.s.	16	n.s.
Elkington <i>et al.</i> (2014)	Lao (Laos)	MED	250	n.s.	12	Evergreen-mixed & deciduous forest
Khuankaew <i>et al.</i> (2014)	Tai Yai (Thailand)	MED	141	4	126	n.s.
Junsongduang <i>et al.</i> (2014)	Karen, Lawa (Thailand)	MED	103	2	67	n.s.
Kosaka <i>et al.</i> (2013)	Lao, Tai Leu, Tai Dam, Tai Deng, Khmu, Hmong (Laos)	WEP	115	2	20	Paddy fields
Tangjitman <i>et al.</i> (2013)	Karen (Thailand)	MED, WH	379*	14	458	Mixed deciduous, coniferous & hill evergreen forest
Inta <i>et al.</i> (2013)	Yuan (Thailand)	MED	93	5	30	n.s.
Srithi <i>et al.</i> (2012)	Hmong (Thailand)	MED, WH	79*	3	153	n.s.
Cruz-Garcia & Price (2011)	Isaan (Thailand)	WEP	87	4	n.s.	Dry monsoon forest (dipterocarp forest)
Lamxay <i>et al.</i> (2011)	Kry (Laos)	MED, WH	49	3	20	n.s.
de Boer <i>et al.</i> (2010)	17 groups (Laos)	REP	92	66	n.s.	n.s.
de Boer & Lamxay (2009)	Brou, Saek, Kry (Laos)	MED, WH	55	10	38	Secondary forest
Inta <i>et al.</i> (2008)	Akha (Thailand & China)	MED	95	5	50	n.s.
Libman <i>et al.</i> (2006)	n.s. (Laos)	MED	55	8	n.s.	n.s.
Johnson & Grivetti (2002)	Karen (Thailand)	WEP	47	2	32	Degraded secondary forest
Van On <i>et al.</i> (2001)	Dao (Vietnam)	MED	200	n.s.	n.s.	Primary & secondary forest, bamboo thicket, grassland, plantation
Anderson (1986a)	Akha (Thailand)	MED	121	n.s.	n.s.	Dry evergreen & lower montane (moist evergreen) forest
Anderson (1986b)	Lahu (Thailand)	MED	68	n.s.	n.s.	Lower montane (moist evergreen) region

and forest-spirits); and, ii) investigate the ability of local and indigenous people to collect plant voucher specimens. We also compared the local names of plants and forest types to scientific classifications and assessed how much of their useful or culturally important flora was threatened. The study did not consider differences in knowledge between Kuy and Khmer people because of the cultural continuum between the two groups (Swift, 2013). Our findings will later be shared with the communities in the form of a book.

Methods

Study area and ethnicity

The greater Prey Lang area extends over four provinces in the central plains of Cambodia: Preah Vihear, Stung Treng, Kratie, and Kampong Thom. The area contains seven vegetation types among its evergreen, semi-evergreen, and deciduous forests, which differ significantly in species composition, dominant tree species and plant community structure (McDonald, 2004; Olsson & Emmett, 2007; Theilade *et al.*, 2011).

Approximately 250,000 people live in the greater Prey Lang area and the dominant ethnic groups are Kuy (indigenous) and Khmer (Cambodian). The Kuy (also recorded as Kui, Kuoy, Kuay, Kouy, Suoy or Suay) occur in northeastern Thailand, southern Laos, and northern and northeastern Cambodia. Most of the Kuy people in Cambodia live in the Prey Lang area, with an unverified population estimate of 23,000 (Swift, 2013).

Kuy and Khmer people are similar in terms of physical appearance, material culture, and religious practices: both groups are culturally and spiritually linked to the forest and practice of animism and Buddhism in Prey Lang (Swift, 2013). Lowland rice cultivation and swidden agriculture are widespread among both. The majority of inhabitants rely directly on the natural resources of Prey Lang for their livelihoods and resin tapping (extraction of oleoresin from dipterocarp trees) is the main source of cash income (Jiao *et al.*, 2015; Hüls Dyrmosse *et al.*, in press).

Differences between the Kuy and Khmer groups have become subtle since national integration and assimilation policies were adopted by the Cambodian Government following independence in 1953 (Baird, 2011). These policies were strengthened during the Pol Pot regime in the 1970s, when Kuy communities were resettled to lowland areas such as Prey Lang and those speaking Kuy language were punished. Interaction and inter-marriage between Kuy and Khmer is frequent and many Kuy

have adopted Khmer culture and traditions, although small differences still exist between the two groups. These include distinctive rituals (e.g., the Kuy practice communal fishing before the annual ceremony for the village spirit, perform rites for spirits before clearing new swiddens, or involve a certain species of turtle in weddings) and some characteristic crafts, foods, clothing and housing styles. While the two groups formerly distinguished themselves through economic specialties such as iron production, their livelihood strategies of Kuy and rural Khmer are now very similar (Swift, 2013).

In recent decades, the Kuy identity has been based upon language and/or family descent, whereby a person may identify themselves as Kuy if they speak the language and/or have a Kuy parent. However, Kuy people sometimes deny their ethnicity because they may be perceived as being of lower status (Swift, 2013). The Kuy language also shares many terms with Khmer, which may be due to their shared roots (because both are Mon-Khmer languages) or borrowed from Khmer (Mann & Markowski, 2005).

Three villages in Prey Lang were selected for the study: Thmea and Phneak Roluek in Preah Vihear Province and Spong in Stung Treng Province (Fig. 1). Thmea and Phneak Roluek were selected by representatives of the Prey Lang Community Network (PLCN) because they comprise traditional Kuy villages. The PLCN is a network of villagers within the Prey Lang area who advocate for forest protection through peaceful patrols and anti-logging interventions. Spong was selected by the authors due to its proximity to the core area of Prey Lang. This is the least disturbed area of the Prey Lang forests and is dominated by primary evergreen dipterocarp forest, with local residents reportedly being Khmer.

At the time of the study, Thmea was the largest village (2,024 people), closest to a paved road (36 km), surrounded by disturbed and deciduous forest, and furthest from evergreen forest. Spong was the smallest village (497 people), furthest from paved roads (73 km) and markets (76 km), and mainly surrounded by primary evergreen dipterocarp forest. Phneak Roluek Village was intermediate in size (587 people), distance to a paved road (44 km) and distance to evergreen forest (CDB Online, 2010) (Fig. 1).

Study formulation and methods

The idea to conduct an ethnobotanical study was initially discussed by the authors and PLCN steering committee. The committee agreed that it would be useful to document their knowledge and agreed to co-design the study and participate in the research process. Fieldwork took

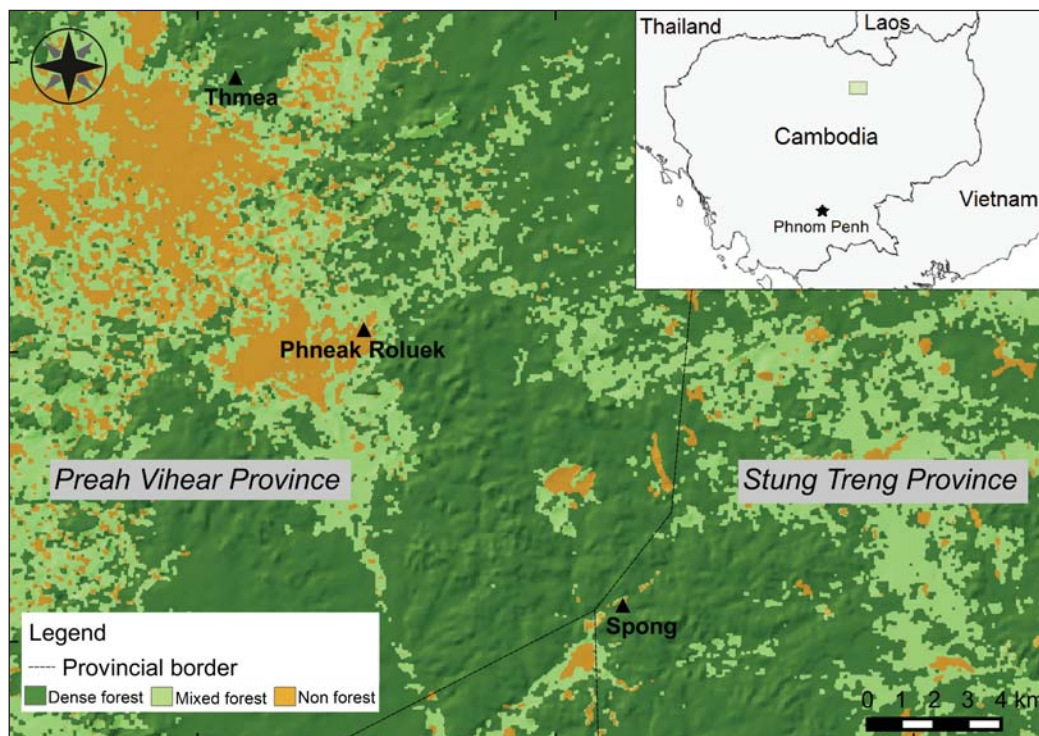


Fig. 1 Study sites in Prey Lang, Cambodia. Created using forest cover map (Open Development Cambodia, 2014) and natural earth data in QGIS.



Fig. 2 Kuy woman carrying a handmade basket outside a traditional house. Phneak Roluek Village, Preah Vihear Province, September 2014 (© Nerea Turreira-García).



Fig. 3 Plant collector in Prey Lang, near Spong Village, Stung Treng Province, May 2015 (© Nerea Turreira-García).

place during September 2014, April–May 2015, and December 2016. Field methods included participatory mapping exercises, rankings, free-listings, forest walks, botanical collections and focus group discussions, and are explained in more detail below.

To record local knowledge of plants used by the Kuy people at Prey Lang, the Thmea, Phneak Roluek, and Spong villages were visited three times. During the first visit, five to seven men and four to seven women participated in workshops led by the first author and an interpreter in each village. The men were 53 ± 13 years old and women 52 ± 3 years old on average. Workshop participants were decided by a PLCN representative from each village, based on participants' knowledge of the area and its natural resources. Following the International Society of Ethnobiology guidelines (ISE, 2006), the study objectives were explained and participants gave their prior informed consent. Sharing and publication of results, and confidentiality were agreed upon. The workshops consisted of a participatory mapping exercise where participants drew their community boundaries, forest types, zones of use, and the most important sites and natural resources (Gilmore & Young, 2012). This helped the authors to become familiar with the area and local terms and aided the design of later forest walks and botanical collections with the participants. Participants were also asked to describe the defining characteristics of each-forest type and natural resources identified in the mapping exercise were ranked in order of importance.

Men and women were separated into two gender-based groups to free-list useful plants, including those they did not use or only used infrequently. This allowed for smaller and more productive working groups, because men and women sometimes differ in their knowledge due to gender-based divisions of labour (Reyes-García *et al.*, 2007). This was especially valuable for engaging the women who otherwise might have contributed less. Each group recorded the name, growth form, habitat, uses and flowering season of each plant (Martin, 2004; Reyes-García *et al.*, 2006; Powell *et al.*, 2014) and took about 90 minutes to complete their free-lists.

During the second and third visits, plant species registered during the workshops (and others not included in the workshop lists) were collected during forest walks (Martin, 2004). Twelve people comprising two men and two women from each of the three villages assisted with the plant collection (Figs 2–3), seven of whom were Kuy and five Khmer. These were divided into male and female groups and trained in botanical specimen collection and note-taking. During the forest walks, local names for forest types were compared with the vegetation classifi-

cations and descriptions of McDonald (2004) and Rollet (1972).

A total of 704 specimens were collected, after which the collectors were asked about the uses, parts used, preparation methods, and local (folk) names for each plant. Local names that referred to the same scientific species were regarded as synonyms and counted as one taxon in analysis. At the end of each visit, plant collectors cross-checked information recorded during focus-group discussions. Information about forest spirits was collected through informal conversations with the plant collectors.

Plant uses were later categorised following Cook (1995), who defined 12 use categories, plus two additional categories defined by Gruca *et al.* (2014), namely 'cultural diseases and disorders' and 'ritual/magical' uses, and two categories defined by the authors, namely 'resin' and 'commerce' (Table 2). Ailments treated using medicinal plants were translated verbatim. Plant voucher specimen were dried and pressed at the Forest and Wildlife Research Institute in Phnom Penh. These were identified by two of the authors (CP & PS) and a full set of specimens were deposited in the Queen Sirikit Botanic Garden in Thailand. Species names and family classifications were confirmed using *The Plant List* (2013), and IUCN (2017) was used to determine the conservation status of species. In our analysis and interpretation, we refer to folk taxa based on local names, and to scientific species. Terms given in italics are in Khmer language.

Results

Forest types

During the participatory mapping exercise and forest walks, all three communities claimed to distinguish four types of forest (*prey* in Khmer, also used by Kuy):

1. *Prey robôh* ('sparse forest', Fig. 4), described as a non-dense, deciduous forest that grows nearby their rice fields and *chamkars* ('forest gardens'). *Prey robôh* corresponds to two forest types described by McDonald (2004), namely deciduous forest (<35 m tall) and short semi-evergreen forest (3–12 m tall). Local informants did not distinguish successional stages of the deciduous forest, whereas the short semi-evergreen forest is a combination of both deciduous and evergreen species.
2. *Prey sralao'* (no English translation, Fig. 5) was described by the local communities as a tall evergreen forest at Prey Lang, denser than *robôh* but easily traversable, and characterised by dominance of the *sralao'* trees (*Lagerstroemia* sp.). McDonald (2004) and Rollet (1972) classified this forest type with the same name.

Table 2 Description of plant use categories employed in this study for classifying plant use records (adapted from Cook (1995) and Gruca *et al.* (2014)).

Use category	Abbr.	Description
Food	F	Plants eaten by human beings, and plants used to make beverages
Food additives	Fa	Processing additives and other additive ingredients used in food or beverages preparation
Vertebrate food	V	Forage and fodder for domestic or wild vertebrates that are useful to humans
Invertebrate food	I	Plants eaten by invertebrates that are useful to humans
Apicolous	A	Plants that provide pollen, nectar or resins as sources for honey or propoleum production
Fuel	Fu	Plants used to produce charcoal, or used as petroleum substitutes, alcohols, tinder or firewood
Materials	Ma	Plants used for construction of houses, fences or bridges, or to elaborate handicrafts, music instruments, work tools, weapons, home objects, etc. This category includes fibres, waxes, oils, chemicals and their derived products (but not Resin), cosmetic products and dyes
Social	S	Plants used for cultural purposes, which are not definable as food or medicines. This category includes stimulants, and plants used for games (modified according to local beliefs)
Toxic to vertebrates	Tv	Plants that are poisonous to vertebrate animals, both accidentally and when deliberately applied, such as extracts and preparations used for fishing and hunting
Toxic to non-vertebrates	Tn	Plants that are poisonous to non-vertebrates, both accidentally and when deliberately applied. This category includes insecticides and herbicides
Medicinal	M	Plants used to cure human and animal sicknesses
Environmental	E	Plants used to protect, improve, and fertilise soils; to provide shadow, as living fences, ornamentals or that form a structural part of agroforestry systems
Cultural Diseases and Disorders	CDD	Plants used to treat disorders caused by spirits, such as mental illnesses and curses (modified according to local beliefs)
Ritual/Magical Uses	RMU	Plants used during healing ceremonies, incantations, prayers, offerings and sacrifices made to deities, fetishes/amulets/charms, divination/oracles, black magic/bad medicines, incense
Resin	R	This category is separated from 'Materials' due to its high importance in Cambodian livelihoods
Commerce	C	Plants used for trade and are part of the household economy

3. *Prey sdok* ('thick/narrow forest'), *prey thom* ('tall forest') and *prey chas* ('old forest') were Khmer synonyms for the 'hard to penetrate', tall forest at Prey Lang (Fig. 6). According to informants, this forest type is where more natural resources, expensive timber trees, resin trees, rattan and animals occur. It corresponds to the semi-evergreen and evergreen dipterocarp forests described by McDonald (2004) and the dense forest described by Rollet (1972).
4. *Prey choam* (in Kuy) or *prey roneam* (in Khmer, Fig. 7), was described as 'the forest growing on land permanently covered by shallow water'. McDonald (2004) distinguished two types of swamp forest, deciduous swamp forest and evergreen swamp forest, and Theilade *et al.* (2011) provided a detailed account of the latter. Both types of swamp forest are rare and endemic to the region.

Inhabitants of the three villages collect timber and non-timber forest products (NTFPs) in different areas of all four forest types. They usually follow rivers, trails which they create and maintain, and at Thmea Village, also a road built by a mining company. During their forest trips,

they hunt and collect wood for construction, medicinal plants, resin and rattan. Trip frequency, duration, transportation and distance travelled vary according to the purpose and needs of each trip. In the dry season for example, men usually travel in pairs to the forest by *coyon* (local tractor) to collect oleoresin from dipterocarp trees. These trips last about three days and the collectors sleep in hammocks in forest shelters. Women usually walk or are carried by *coyon* or motorbike to collect NTFPs in daily trips throughout the year.

Importance of forest resources

Our ranking exercise revealed that the most important resources for all three villages are the resin trees belonging to the Dipterocarpaceae, followed by *pdao* (*Calamus viminalis* Willd.), a rattan used to make furniture for sale and local use. The Prey Lang area was also reported to be important for medicinal plants, wild edible plants, other kinds of NTFPs, wild animals and timber.



Fig. 4 Deciduous forest. Stung Treng Province, September 2014 (© Nerea Turreira-García).



Fig. 5 *Sralao'* (*Lagerstroemia* sp.) forest. Preah Vihear Province, April 2015 (© Nerea Turreira-García).



Fig. 6 Short semi-evergreen forest and evergreen dipterocarp forest. Preah Vihear Province, December 2016 (© Nerea Turreira-García).



Fig. 7 Evergreen swamp forest. Stung Treng Province, December 2016. (© Nerea Turreira-García).



Fig. 8 Spirit house near Phneak Roluek. Preah Vihear, September 2014 (© Nerea Turreira-García).

Folk taxa

Our free-listing exercises and plant collections yielded 374 folk taxa, 337 (90%) of which were collected and five photographed. Of the 337 folk taxa collected, eight were identified to family, 31 to genus and 288 to species (Appendix 1). Ten were not identified to species level. Thirty-two plants were not collected or photographed, either because they were locally extinct, occurred too far away or because (in two cases) our local plant collectors did not know them. Informants claimed to use at least 11 species of fungi, of which four belong to the Basidiomycota phyla. These are not considered further in our analysis.

The folk taxa recorded belonged to 83 families and the families most frequently listed were Leguminosae (10%), Rubiaceae (8%), Annonaceae (4%), Apocynaceae (4%), Malvaceae (4%), and Dipterocarpaceae (3%). Species known by most informants included highly valuable timber species such as *Hopea odorata* Roxb. (*korki*), *Azalia xylocarpa* (Kurz) Craib (*beng*), *Heritiera javanica* (Blume) Kosterm. (*doungchem*), *Dalbergia oliveri* Prain (*neanghoun*), *Pterocarpus macrocarpus* Kurz (*thnong*), *Shorea roxburghii* G. Don (*porpael*), *Sindora siamensis* Miq. (*korkoh*), and *Terminalia mucronata* Craib & Hutch. (*bramdomleng*); *Lagerstroemia speciosa* (L.) Pers. (*kraol*), a medicinal plant with abundant and flashy purple flowers at the time of the collection; several resin-yielding species including *Dipterocarpus alatus* Roxb. & G. Don (*chhertheal*) and *D. intricatus* Dyer (*trach*); and finally, edible species and species with medicinal properties: *Azadirachta indica*

A. Juss. (*sdao*), *Hymenodictyon orixense* (Roxb.) Mabb. (*aolaok*), and *Syzygium zeylanicum* (L.) DC. (*smarch*).

Most of the plants used were trees and shrubs (70%), followed by vines, including woody and non-woody lianas and climbers (24%), although herbaceous plants (5%) and palms (1%) were also registered. A total of 630 uses were recorded for the 374 folk taxa (Fig. 9) and each taxon had 2 ± 1 (mean \pm SD) uses on average. Most were used for medicine ($n=249$, 67%), food ($n=165$, 44%) or as material ($n=138$, 37%), especially for construction of houses, fences and huts.

Most medicinal folk taxa were used for a single ailment (51% of all medicinal folk taxa), 32% for two ailments, and 17% for more than two ailments. For instance, *Lagerstroemia speciosa* was reported to cure seven different illnesses. Almost 30% of the medicinal folk taxa were used to treat postpartum ailments, usually to stimulate appetite, milk production, blood circulation or uterus contraction. This was followed by plants that cured fever (20%), skin problems (17%) and stomach problems (10%).

Informants often agreed on the uses of folk taxa, although they sometimes used the same taxon for different ailments. For example, women from Phneak Roluek Village usually grind the leaves of *Drynaria sparsisora* (Desv.) T. Moore for boils, whereas men from Spong Village claimed that chewing the root of this plant cured urine infection. In addition, different parts of the same folk taxon were sometimes used for the same ailment. In Spong for example, the bark of *Terminalia mucronata* is

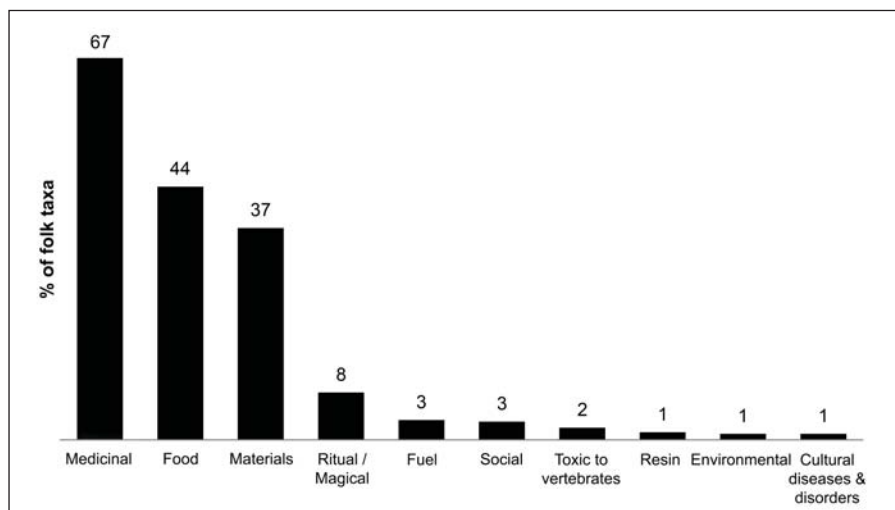


Fig. 9 Percentage of folk taxa ($n=374$) per plant-use category in Prey Lang, Cambodia.

boiled to treat diarrhoea, whereas women from Phneak Roluek Village boil the root for the same purpose. Men from Thmea Village claimed that the bark of *Ficus benjamina* should be boiled for skin infections, while men from Spong and women from Phneak Roluek prepare cold infusions of the root and/or leaves for the same purpose.

Men often knew the medicinal plants for postpartum ailments, but seldom knew their specific uses. The plant collectors from all three villages explained that men often collect these plants for their wives and so recognize them, but that women usually prepare the medicines. Women consequently provided more information on the preparation of medicinal plants for postpartum ailments, although they did not always agree on what the postpartum plants were specifically used for. For example, women from Phneak Roluek boiled or made a tincture from the bark of *Hymenocardia punctata* Wall. ex Lindl. to improve postpartum blood circulation, whereas women from Spong boiled the root of the species to stimulate appetite, milk production and postpartum health.

Men collected and free-listed 237 species and women 235 species in total. Men knew 65 folk taxa that women did not free-list or collect, and women knew 81 folk taxa that men did not. Of the folk taxa known only to men, 47 were medicinal (19% of all medicinal folk taxa), 20 were materials (14%) and 12 were food (7%). Of the folk taxa only known to women, 46 were medicinal (18% of all medicinal folk taxa), 40 were food (24%) and 18 were materials (13%). Informal conversations with the plant collectors on the differences between plants known and used by women and men revealed that they do not perceive knowledge as being influenced by gender. In their view, both men and women know the same plants.

Forest and village spirits

Informants explained during the plant collection that many spirits occur in the Prey Lang forest. Multiple forest spirits or village spirits exist, such that each community takes care of a particular forest-spirit, or group of spirits, and sometimes different communities take care of the same spirit. In addition, some trees have their own spirit. For example, when *Hopea odorata* (korki) and *Dipterocarpus alatus* (chhertheal) are large, these trees are inhabited by a spirit. Other large trees that possess their own spirit include *Irvingia malayana* Oliv. ex A.W.Benn. (chombork), *Sindora siamensis* (korkoh), *Lagerstroemia calyculata* Kurz (sralao') and all resin-yielding trees. *Ficus pubilimba* Merr. (chhrey) trees also have a spirit, irrespective of size.

Spirit trees are not supposed to be cut, and villagers must ask permission from the spirit if they wish to do so. In general, people pray to the forest-spirit of the area in

spirit houses (Fig. 8) and sacred sites before entering the forest. In their prayers they ask for permission to take its natural resources, and believe that if they fail to do so, the spirit will take revenge and harm them. They also make an offering to spirits before eating or drinking rice wine. Some people reported being angry at the spirits because they do not harm illegal loggers and companies that clearcut forest areas. However, they continue to praise the spirits out of respect (and possibly also fear).

A given spirit can either be male or female. The male spirit is usually called *neak ta* or *lok ta*, and the female spirit *yeay* in Khmer and *yeak* in Kuy. These names change according to the community. The culture of respect for the spirits is passed on through the generations. The forest and tree spirits can also have family members such as parents, spouse and/or children.

Conservation status

Thirty-five of the species recorded have been assessed by IUCN (2017) and a quarter of these belong to the Dipterocarpaceae, notably *Shorea guiso* Blume (chorchong, Critically Endangered), *Dipterocarpus alatus* (chhertheal, Endangered), *Shorea roxburghii* (porpael, Endangered) and *Anisoptera costata* Korth. (pdeak, Endangered). The dipterocarps are used for resin extraction and construction. *Pinus merkusii* Jungh. & de Vriese (srork, Vulnerable) is also used for resin tapping. Some of the luxury wood species are also globally threatened, such as *Azelia xylocarpa* (beng, Endangered), *Dalbergia oliveri* (neanghoun, Endangered), *Hopea odorata* (korki, Vulnerable), although *Sindora siamensis* is not (korkoh, Least Concern). A number of plant species used for food and medicine also occur on the IUCN list (though not necessarily in a threatened category), including *Curcuma sparganiiifolia* Gagnep. (kra chork anderk, Near Threatened), *Aglaia edulis* (Roxb.) Wall. (bang kau, Lower Risk/Near Threatened) and *Irvingia malayana* Oliv. ex A.W.Benn. (chombork, Least Concern), as do species used for black magic such as *Xylopiia pierrei* Hance (kray sor, Vulnerable).

Discussion

Prey Lang is a mosaic of forest types (McDonald, 2004; Theilade *et al.*, 2011) and its inhabitants are tightly linked to this area culturally, spiritually and economically. This forest-dependency has created a great body of ethnobotanical knowledge. The study participants, who were mainly middle-aged and older people, demonstrated extensive knowledge of useful flora in Prey Lang. Participants explained that some young people know less about the forest and do not show interest in such knowledge.

The youth would need time to accumulate ethnobotanical knowledge if they were interested to do so, if the resources were still available, and if their socio-political conditions were unchanged when they became adults (Reyes-García *et al.*, 2013).

The congruence between local and scientific forest classifications in our study supports the notion that local people can play a role in classification of forest types (Halme & Bodmer, 2007) and ecological conservation and research (Janzen, 2004). Most of the ethnobotanical terminology used by the participants was in Khmer, which suggests that use of the Kuy language for plant-related matters may be vanishing. As noted previously, the Kuy culture has largely been assimilated into Khmer culture in Cambodia (Swift, 2013). Study participants also reported that many children were separated from their parents during the Khmer Rouge (1963–1997) and lost the ability to speak Kuy. This contrasts with the culture of forest knowledge and respect for spirits, which has clearly survived.

The ethnobotanical knowledge of the inhabitants of Prey Lang encompasses mainly trees and shrubs, which may reflect the abundance and distribution of vegetation here. Most of the plants used were used for medicine, food and construction, similar to patterns of plant use by Kuy healers in Thailand (Virapongse, 2006). Compared with other studies in similar vegetation in Indochina, the numbers of medicinal plants used in Prey Lang ($n=249$) were similar or greater than those reportedly used by the Lao ($n=250$; Elkington *et al.*, 2013), Dao ($n=200$; Van On *et al.*, 2001), Akha ($n=121$; Anderson, 1986a) and Lahu ($n=68$; Anderson, 1986b) ethnic groups. Somewhat higher figures have been reported for Kuy healers ($n=333$; Virapongse, 2006) and the Karen ethnic group in Thailand, however ($n=379$; Tangjitman *et al.*, 2013), possibly due to greater survey coverage or because these studies included more cultivated species. The Kuy people also appear to know more wild edible plants ($n=165$) than the Isaan ($n=87$; Cruz-García & Price, 2011) and Karen ($n=47$; Johnson & Grivetti, 2002) ethnic groups in Thailand.

Previous studies suggest postpartum ailments are the most frequent conditions treated with medicinal plants by the Kuy in Cambodia (Grape *et al.*, 2016). On revisiting the research sites of Grape *et al.* (2016), we found 11 new plants used for postpartum ailments, which suggests that potential remains to find additional useful plants in Prey Lang. This contrasts with other studies that have found that fever and digestive problems are the most frequently treated ailments in the region (Virapongse 2006; Tangjitman *et al.*, 2013; Elkington *et al.*, 2014; Neamsuvan *et al.*, 2015) and world-wide (e.g., Hanazaki *et al.*, 2000; Casagrande, 2002; Ayodele, 2005; Liu *et al.*, 2009).

Resin trees, the main source of income to local households (Jiao *et al.*, 2015; Hüls Dyrmosse *et al.*, in press), were ranked in our study as the most important resources of Prey Lang, together with trees used for construction. Many of these trees were also considered spirit trees and thus constitute a strong bio-cultural and economic connection to the forest. Unfortunately, many of these trees are also luxury timber trees which have been logged illegally for decades, and are now endangered locally and globally. Illegal logging consequently threatens the bio-cultural life of the Kuy and Khmer people at Prey Lang.

Other studies have found gender-based differences in ethnobotanical knowledge across most use-categories (Nesheim *et al.*, 2006; Araújo & Lopes, 2011; Müller *et al.*, 2014). These are usually represented as differences in number of species known, and/or that men and women know different species because of their different roles in society. Our results suggest the reverse: that many plants are known by both men and women but their use is gendered (i.e., men collect the species whereas women oversee their use). Conversations with plant collectors on the differences between plants known and used by women and men revealed that they did not perceive plant knowledge as gendered: in their view, men and women know the same plants. Further studies are consequently warranted to determine if gender-specific plant knowledge exists in Prey Lang or not.

The participatory nature of our study encouraged local people to gain ownership of the research. As it was made clear from the onset that the results would be shared with the communities in the form of an ethnobotanical book, this motivated study participants to extensively collect useful plants and explain their uses in detail. The plant collectors also felt that a book might motivate younger generations to take interest in the subject, and subsequently pass on their knowledge to future generations.

The plant list generated in this study was used to create a database to support community-based biodiversity monitoring and our study demonstrates that local experts can effectively contribute to forest categorisation and voucher specimen collection. As indigenous knowledge is constantly changing, being produced as well as reproduced, discovered as well as lost (Ellen *et al.*, 2000) and is also site-specific (Mutchnick & McCarthy, 1997), we acknowledge that additional plants may have been used in the past or in other regions of Prey Lang. Nevertheless, this study serves as an indicator of the bio-cultural diversity and importance of Prey Lang and it points to the need to conserve this ecosystem to sustain the livelihoods of its inhabitants.

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About the Authors

NEREA TURREIRA-GARCÍA is a PhD student at the University of Copenhagen, Denmark. She studied environmental sciences at the University of the Basque Country (Spain) and forest and nature management at the University of Copenhagen. Her main line of research concerns local ecological knowledge and forest monitoring and she has worked in Cambodia, Vietnam, Guatemala, Spain and the Netherlands.

DIMITRIOS ARGYRIOU is a consultant and data manager in the project “It’s our forest too”, concerning Prey Lang forest in Cambodia. He studied Agricultural engineering in Democritus University of Thrace, Greece and an MSc in Food Safety in Wageningen University, Netherlands. He has collaborated with research projects in Cambodia, Guatemala and the Netherlands.

PHOURIN CHHANG is the Deputy Director of the Forest and Wildlife Research Institute in Phnom Penh, Cambodia. He has extensive experience of botanical surveys in the central lowlands of Cambodia and Bokor National Park.

PRACHAYA SRISANGA is a curator at Queen Sirikit Botanic Garden Herbarium, Chiang Mai, Thailand. His main research is on species diversity of plants in mainland Southeast Asia (Laos, Myanmar and Thailand), especially within the Juglandaceae and Violaceae. He also has an interest in ethnobotanical studies of ethnic groups in Southeast Asia.

IDA THEILADE is a senior researcher at the University of Copenhagen. Her current research concerns community monitoring of forest biodiversity, carbon stocks and resources, and the role of local knowledge and institutions in conservation and management of tropical forests.

Appendix 1 Information on species free-listed and collected in northwestern Prey Lang, Cambodia.

Use categories: C = Commerce, CDD = Cultural diseases and disorders, E = Environmental, F = Food, FA = Food additives, Fu = Fuel, Ma = Materials, M = Medicinal, R = Resin, RMU = Ritual/Magical Uses, S = Social, TV = Toxic to vertebrates. Ethnospecies names in *italics* are in Kuy, otherwise Khmer. Vouchers are deposited at Queen Sirikit Botanic Garden, Chiang Mai, Thailand.

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Acacia harmandiana</i> (Pierre) Gagnep.	Leguminosae	Thmea	Tree	76, 387PR, 904	M, Ma, CDD
<i>Acacia pennata</i> (L.) Willd.	Leguminosae	Mchoo Som Bour	Shrub	948	F
<i>Acacia pennata</i> subsp. <i>insuavis</i> (Lace) I.C. Nielsen	Leguminosae	Vor Em	Vine	580, 585	M, F
<i>Acacia</i> sp.	Leguminosae	Vor Torleng	Vine	92	M, TV
<i>Acronychia pedunculata</i> (L.) Miq.	Rutaceae	Tromel	Tree	480	M
<i>Azelia xylocarpa</i> (Kurz) Craib	Leguminosae	Beng	Tree	227, 669, 676, 35, 43	M, Ma, F
<i>Aganoneurion polymorphum</i> Spire	Apocynaceae	Vor Tneng	Vine	347	F
<i>Aglaia edulis</i> (Roxb.) Wall.	Meliaceae	Bang Kau	Tree	921	F
<i>Aglaia lawii</i> (Wight) C.J. Saldanha	Meliaceae	Bang Kau Sva	Tree	222, 664	M, F
<i>Albizia lebbeck</i> (L.) Benth.	Leguminosae	Chres	Tree	78	F, Ma
<i>Allophylus cobbe</i> (L.) Raeusch.	Sapindaceae	Sleuk Bei	Shrub	775	M
<i>Alpinia galanga</i> (L.) Willd.	Zingiberaceae	Rom Deng (Prey)	Herb	197, 246	M, F, Ma
<i>Amaranthus spinosus</i> L.	Amaranthaceae	Ptebanla	Herb	243	M, F
<i>Amorphophallus</i> sp.	Araceae	Teal	Shrub	934	M, F
<i>Amphineurion marginatum</i> (Roxb.) D.J. Middleton	Apocynaceae	Sralao' Ompae	Vine	515, 488, 46	M
<i>Ancistrocladus tectorius</i> (Lour.) Merr.	Ancistrocladaceae	Khanma, Ktong	Vine	147, 132, 651	M, Ma
<i>Anisoptera costata</i> Korth.	Dipterocarpaceae	Pdeak	Tree	193, 645, 668	Ma
<i>Anisoptera</i> sp.	Dipterocarpaceae	Stearng	Tree	196, 639, 666	Ma, R
<i>Antidesma ghaesembilla</i> Gaertn.	Euphorbiaceae	Dongkeabkdam	Tree	278, 489, 462	M, F, RMU, Fu
<i>Antidesma japonicum</i> Siebold & Zucc.	Euphorbiaceae	Trormouch, Mchoo Trormouch	Shrub	165, 172, 483, 915	M, F, RMU
<i>Aporosa ficifolia</i> Baill.	Phyllanthaceae	Krong	Tree	413, 526, 759	M
<i>Aporosa planchoniana</i> Baill. ex Müll. Arg.	Phyllanthaceae	Propech Chongva	Tree	565, 570	M
<i>Ardisia crenata</i> Sims	Primulaceae	Kandetmean	Shrub	158.2, 581, 574	M, F
<i>Areca triandra</i> Roxb. ex Buch.-Ham.	Areaceae	Chnarb	Palm-like	463, 426	S, Ma, F
<i>Argyreia mollis</i> (Burm. f.) Choisy	Convolvulaceae	Vor Tror Jeark Tun Sai	Vine	527	Ma
<i>Artocarpus chama</i> Buch.-Ham.	Moraceae	Knorprey	Tree	266, 289	M, Ma, F
<i>Artocarpus nitidus</i> subsp. <i>lingnanensis</i> (Merr.) F.M. Jarratt	Moraceae	Sombour	Tree	359, 473, 690	M, S, Ma, F
<i>Azadirachta indica</i> A. Juss.	Meliaceae	Sdao	Tree	315, 286, 667, 678, 83	M, F, Ma
<i>Baccaurea ramiflora</i> Lour.	Phyllanthaceae	Pnheav	Tree	213, 118, 613, 618	F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Baeckea frutescens</i> L.	Myrtaceae	Mrichtonsay	Tree	637, 670	M, F
<i>Barringtonia acutangula</i> (L.) Gaertn.	Lecythidaceae	Reang	Tree	99, 661, 624	M, F, Ma, TV
<i>Bauhinia bracteata</i> (Benth.) Baker	Leguminosae	Jerngkow, Klaenpor	Tree	603, 552, 510, 123	M, S, Ma
<i>Bauhinia hirsuta</i> Weinm.	Leguminosae	Cheungkhu	Tree	327, 174	M, F
<i>Beaumontia murtonii</i> Craib	Apocynaceae	Vor Thlork	Vine	785, 999	Ma
<i>Berrya mollis</i> Wall. ex Kurz	Malvaceae	Sor Seurm, Trorserm	Tree	373PR, 36, 907	M, Ma, Fu
<i>Blumea balsamifera</i> (L.) DC.	Compositae	Baymart	Shrub	457	M
<i>Bombax anceps</i> Pierre	Malvaceae	Rorkar	Tree	323, 302, 435, 608, 31	M, Ma
<i>Breynia vitis-idaea</i> (Burm.f.) C.E.C. Fisch.	Phyllanthaceae	Muntrei, <i>Miat Kar</i>	Vine	837	M, F
<i>Bridelia ovata</i> Decne.	Euphorbiaceae	Pnektrey	Tree	2	F
<i>Bridelia</i> sp.	Phyllanthaceae	Chhlikpork	Tree	62	M
<i>Brucea javanica</i> (L.) Merr.	Simaroubaceae	Bromatmunus, Damley Smang	Shrub	333, 38	M
<i>Buchanania cochinchinensis</i> (Lour.) M.R. Almeida	Anacardiaceae	Laingchey, Romchey	Tree	433, 450	M, F
<i>Butea superba</i> Roxb.	Leguminosae	Vor Char	Vine	326	M, Ma
<i>Caesalpinia digyna</i> Rottler	Leguminosae	Vor Kvav	Vine	912	M
<i>Caesalpinia sappan</i> L.	Leguminosae	Kvav Banla	Tree	6	M
<i>Calamus palustris</i> Griff.	Arecaceae	Pdao Chvang	Vine	229, 228, 13	M, Ma, F
<i>Calamus rudentum</i> Lour.	Arecaceae	Vor Dombong	Vine	320, 951	F, C, Ma
<i>Calamus tetradactylus</i> Hance	Arecaceae	Vor Seung	Vine	198	Ma, C, F
<i>Calamus viminalis</i> Willd.	Arecaceae	Chongpdoa, Pdao	Vine	111, 455, 789, 21	M, Ma, F
<i>Calophyllum calaba</i> var. <i>bracteatum</i> (Wight) P.F.Stevens	Clusiaceae	Paong	Tree	395, 390, 199	Ma, F, Ma
<i>Cananga latifolia</i> (Hook.f. & Thomson) Finet & Gagnep.	Annonaceae	Chkaesraeng	Tree	295, 308, 595, 592, 39, 66	M
<i>Capparis micracantha</i> DC.	Capparaceae	Kounh Chur Beay Dach	Shrub	152	M
<i>Careya arborea</i> Roxb.	Lecythidaceae	Kondaul	Tree	385PR, 379SP, 492, 49	M, Ma
<i>Caryota mitis</i> Lour.	Arecaceae	Tunsae, Ansaе, Chongsae	Tree	139, 116, 497, 620	M, Ma, F
<i>Cassia javanica</i> L.	Leguminosae	Kal	Tree	445	S
<i>Cassytha filiformis</i> L.	Lauraceae	Vor Rom saysork	Vine	449	M
<i>Catunaregam tomentosa</i> (Blume ex DC.) Tirveng.	Rubiaceae	Rorveang, Rveang Sor	Tree	382, 572	M, S
<i>Ceiba pentandra</i> (L.) Gaertn.	Malvaceae	Kor	Tree	698	F, Ma
<i>Celastrus</i> sp.	Celastraceae	Vor Kolab	Vine	622	M
<i>Chionanthus ramiflorus</i> Roxb.	Oleaceae	Spet, Marey	Tree	547, 505, 476	M, S
<i>Chionanthus</i> sp.	Oleaceae	Archdaek	Tree	7	Ma

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Compositae	Pka'Sor, Kon Traeng Kaet	Shrub	900	M, E, F
<i>Cinnamomum bejolghota</i> (Buch.-Ham.) Sweet	Lauraceae	Teppiroo	Tree	179	M
<i>Cinnamomum cambodianum</i> Lecomte	Lauraceae	Tepproo	Tree	821	M
<i>Cinnamomum polyadelphum</i> (Lour.) Kosterm.	Lauraceae	Slapok	Tree	101, 423, 563, 536	M, S
<i>Citrus lucida</i> (Scheff.) Mabb.	Rutaceae	Kror Sang	Tree	818	
<i>Clausena excavata</i> Burm. f.	Rutaceae	Kanhchrok	Shrub	241, 96, 484, 459	CDD, RMU
<i>Cleistanthus</i> sp.	Phyllanthaceae	Neang Leav	Tree	762	M, F, Ma
<i>Colona auriculata</i> (Desf.) Craib	Malvaceae	Preal	Shrub	437, 652, 168	M, Fu, Ma
<i>Colona</i> sp.	Malvaceae	Tangek	Tree	309	Ma
<i>Combretum latifolium</i> Blume	Combretaceae	Vor Rormeas	Vine	647, 314	M, F
<i>Combretum micranthum</i> G. Don	Combretaceae	Vor Khnos	Vine	230, 516, 471	M, F
<i>Combretum quadrangulare</i> Kurz	Combretaceae	Sangkae	Tree	363, 589	M, Ma, Fu
<i>Connarus cochinchinensis</i> (Baill.) Pierre	Connaraceae	Vor Lompoh	Vine	521, 496, 825	M
<i>Coptosapelta flavescent</i> Korth.	Rubiaceae	Vor Tonling Plerng	Vine	235	M
<i>Costus speciosus</i> (J.Koenig) C.D.Specht	Costaceae	Tar Thok	Herb	812	M, F
<i>Cratogeomys formosus</i> (Jacq.) Benth. & Hook.f. ex Dyer	Hypericaceae	Lngeang	Tree	45, 159	M, F, Ma, Fu
<i>Crotalaria pallida</i> Aiton	Leguminosae	Chongkrong Sva	Shrub	453, 810	M, F
<i>Croton</i> sp.	Euphorbiaceae	Montek	Tree	257, 764	M
<i>Curculigo</i> sp.	Hypoxidaceae	Tnoutley	Herb	322	Ma
<i>Curcuma alismatifolia</i> Gagnep.	Zingiberaceae	Chahouy	Herb	318, 930	F
<i>Curcuma longa</i> L.	Zingiberaceae	Rormeas	Herb	952	M, F, Ma
<i>Curcuma sparganiifolia</i> Gagnep.	Zingiberaceae	Kra Chork Anderk	Herb	593, 143, 914	F
<i>Cyclea barbata</i> Miers	Menispermaceae	Vor Phraskrong	Vine	905, 195, 44	M, F
<i>Daemonorops jenkinsiana</i> (Griff.) Mart.	Arecaceae	Saom	Vine	774	F, Ma
<i>Dalbergia cochinchinensis</i> Pierre	Leguminosae	Kronhong	Tree	573, 560, 84	Ma
<i>Dalbergia oliveri</i> Prain	Leguminosae	Neanghoun	Tree	290, 551, 502, 53	Ma
<i>Dalbergia</i> sp.	Leguminosae	Vor Chas	Vine	916	
<i>Dalbergia thorelii</i> Gagnep.	Leguminosae	Vor Ampil	Vine	523, 494	M, Ma
<i>Dalbergia lanceolaria</i> subsp. <i>paniculata</i> (Roxb.) Thoth.	Leguminosae	Snoul	Tree	303, 300, 441, 458, 25	M, F, Fu
<i>Dasymaschalon macrocalyx</i> Finet & Gagnep.	Annonaceae	Cheungchab	Shrub	110, 479	M, F
<i>Dendrobium lanceolatum</i> (Dunn) Schindl.	Leguminosae	Tronoumbangkhuay	Shrub	247, 310, 553, 460	M, F, RMU
<i>Dialium cochinchinense</i> Pierre	Leguminosae	Vor Kralarnh	Vine	770	Ma

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Dianella ensifolia</i> (L.) DC.	Xanthorrhoeaceae	Kontoykrorper	Herb	409	M
<i>Dillenia hookeri</i> Pierre	Dilleniaceae	Ploosbart	Shrub	381PR, 87	M, F
<i>Dillenia indica</i> L.	Dilleniaceae	Plou	Tree	98, 411	M, F, Ma
<i>Dillenia pentagyna</i> Roxb.	Dilleniaceae	Rovey	Tree	75, 82	M, Fu, F
<i>Dimocarpus longan</i> Lour.	Sapindaceae	Meanprey	Tree	183, 102, 493, 582, 468, 16	M, F, Fu
<i>Dioscorea brevipetiolata</i> Prain & Burkill	Dioscoreaceae	Domlong Tean	Vine	203, 927	F
<i>Dioscorea esculenta</i> (Lour.) Burkill	Dioscoreaceae	Domlong Shar	Vine	935	F
<i>Dioscorea pentaphylla</i> L.	Dioscoreaceae	Vor Dom Loung Teuk	Vine	800	F
<i>Dioscorea poilanei</i> Prain & Burkill	Dioscoreaceae	Domlong Kour	Vine	926	F
<i>Dioscorea polyclados</i> Hook. f.	Dioscoreaceae	Domlong Romeat	Vine	950	F
<i>Diospyros ehretioides</i> Wall. ex G. Don	Ebenaceae	Mormeang	Tree	307, 288	M, TV
<i>Diospyros filipendula</i> Pierre ex Lecomte	Ebenaceae	Ambengprah	Tree	769, 917, 58	M, Ma, F, Fu
<i>Diospyros lobata</i> Lour.	Ebenaceae	Chherkmao	Tree	56	Ma, Fu
<i>Diospyros pendula</i> Hasselt ex Hassk.	Ebenaceae	Khchas	Tree	910	F, Ma
<i>Diospyros</i> sp.	Ebenaceae	Chaas, Ches	Tree	906	F, Fu
<i>Diospyros sylvatica</i> Roxb.	Ebenaceae	Khanhchas, Krorchas	Tree	100, 814	M, Fu, F, Ma
<i>Diospyros undulata</i> Wall. ex G. Don var. <i>cratericalyx</i> (Craib) Bakh.	Ebenaceae	Chi Plerng	Tree	287, 561, 422, 771	TV, F
<i>Diospyros venosa</i> Wall. ex A.DC.	Ebenaceae	Chherkmao II	Tree	415, 520	Ma, Fu
<i>Dipterocarpus alatus</i> Roxb. & G.Don	Dipterocarpaceae	Chhertheal	Tree	107, 164, 621, 456	M, R, Ma
<i>Dipterocarpus intricatus</i> Dyer	Dipterocarpaceae	Trach	Tree	217, 208, 375SP, 376, 29	M, R, Ma
<i>Dipterocarpus obtusifolius</i> Teijsm. ex Miq.	Dipterocarpaceae	Tbaeng	Tree	383PR, 47	M, Ma
<i>Dipterocarpus tuberculatus</i> Roxb.	Dipterocarpaceae	Khlong	Tree	50	Ma
<i>Dischidia major</i> (Vahl) Merr.	Apocynaceae	Vor Bampong sromouch	Vine	569	M
<i>Donax canniformis</i> (G. Forst.) K.Schum	Marantaceae	Ron	Herb	777, 623, 627	M, Ma
<i>Dracaena elliptica</i> Thunb. & Dalm.	Asparagaceae	Tbaldaek	Shrub	542	M
<i>Dracaena angustifolia</i> (Medik.) Roxb.	Asparagaceae	Angraedaek	Shrub	482, 188, 173, 501	M, F, Ma
<i>Drynaria sparsisora</i> (Desv.) T. Moore	Polypodiaceae	Borbrok	Herb	270	M
<i>Elephantopus scaber</i> L.	Compositae	Chen Veal	Herb	758	F
<i>Ellipanthus tomentosus</i> Kurz	Connaraceae	Kdor Komprok	Shrub	267	M, F
<i>Entada rheedii</i> Spreng.	Leguminosae	Vor Ang Kunh	Vine	774	M, Ma
<i>Erythrophleum teysmannii</i> (Kurz) Craib	Leguminosae	Kreul	Tree	932	Ma

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Erythroxylum cambodianum</i> Pierre	Erythroxylaceae	Chompussek, Changkung sek	Shrub	412, 406	M
<i>Euonymus cochinchinensis</i> Pierre	Celastraceae	Koomouy	Tree	519, 448	M
<i>Eurycoma longifolia</i> Jack	Simaroubaceae	Angtongsor	Shrub	321, 316, 567, 388	M, S
<i>Fagraea fragrans</i> Roxb.	Gentianaceae	Tatray	Tree	Photo	Ma
<i>Fagraea racemosa</i> Jack	Gentianaceae	Changka Trong	Tree	786	Ma
<i>Ficus annulata</i> Blume	Moraceae	Chrey Vor, Vor Chrey	Vine	248	M
<i>Ficus benamina</i> L.	Moraceae	Chhreykruem	Tree	686, 64	M
<i>Ficus callophylla</i> Blume	Moraceae	Chrey Klaok	Tree	628	M
<i>Ficus hirta</i> Vahl	Moraceae	Lavadey	Tree	533	F
<i>Ficus hispida</i> L.f.	Moraceae	Roveadey	Tree	242	M
<i>Ficus pubilimba</i> Merr.	Moraceae	Chhrey	Tree	537	F, Ma
<i>Ficus pumila</i> var. <i>awkeotsang</i> (Makino) Corner	Moraceae	Vor Krorbeytraos	Vine	830, 260	M
<i>Ficus racemosa</i> L.	Moraceae	Lovear	Tree	665, 674, 251	M, F
<i>Firmiana simplex</i> (L.) W.Wight	Malvaceae	Samroung	Tree	325	Ma
<i>Flacourtia indica</i> (Burm.f.) Merr.	Salicaceae	Krorkob (Prey)	Tree	607, 15	M, F
<i>Garcinia celebica</i> L.	Clusiaceae	Proos	Tree	129, 451, 9, 442	Ma, F
<i>Garcinia cochinchinensis</i> (Lour.) Choisy	Clusiaceae	Mchhoosandan, Sandan	Tree	834, 692	F
<i>Garcinia merguensis</i> Wight	Clusiaceae	Kres, Yeam	Tree	578, 220	M, F, S
<i>Garcinia oliveri</i> Pierre	Clusiaceae	Trormoong, Mchoo Trormoong, Tronoumseik, Tromongchea	Tree	421, 24	M, F, Fu
<i>Garcinia vilersiana</i> Pierre	Clusiaceae	Prorhoot	Tree	633, 656, 10	Ma, F
<i>Gardenia angkorensis</i> Pit.	Rubiaceae	Daiklar	Tree	375PR	M, C
<i>Gardenia sootepensis</i> Hutch.	Rubiaceae	Barkdong	Tree	293	M, F, Ma
<i>Garuga</i> sp.	Burseraceae	Sdavkhmoch	Tree	5	Ma
<i>Getonia floribunda</i> Roxb.	Combretaceae	Kor Nhours	Vine	813	M
<i>Glochidion kerrii</i> Craib	Phyllanthaceae	Sesach	Tree	486	M
<i>Gmelina asiatica</i> L.	Lamiaceae	Anhcharnh	Tree	93, 507	M
<i>Gnetum montanum</i> Markgr.	Gnetaceae	Khlout	Vine	233, 124, 465, 658	F, Ma
<i>Gomphia serrata</i> (Gaertn.) Kanis	Ochnaceae	Pesles	Tree	175, 112, 391, 380	M
<i>Goniothalamus repevensis</i> Pierre ex Fin. & Gagnep.	Annonaceae	Vor Krovan	Vine	138	M, Ma
<i>Goniothalamus tamirensis</i> Pierre ex Finet & Gagnep.	Annonaceae	Moom	Shrub	629	M, TV
<i>Grewia</i> sp.	Malvaceae	Jeay moa	Tree	336	M
<i>Haldina cordifolia</i> (Roxb.) Rids.	Rubiaceae	Kvav	Tree	606	M, Ma

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Harrisonia perforata</i> (Blanco) Merr.	Simaroubaceae	Klentea	Vine	254, 598, 793	M, F
<i>Hedyotis</i> sp.	Rubiaceae	Slabbrang	Tree	838	M
<i>Helicteres hirsuta</i> Lour.	Malvaceae	Phrealphnom, Preal Momis	Shrub	40, 454	M
<i>Helicteres</i> sp.	Malvaceae	Neang Moa	Shrub	753	M
<i>Heliotropium indicum</i> L.	Boraginaceae	Bromony Domrey	Herb	158, 68	M
<i>Heritiera javanica</i> (Blume) Kosterm.	Malvaceae	Doungchem	Tree	268, 625, 648, 700	Ma
<i>Holarrhena curtisii</i> King & Gamble	Apocynaceae	Tekdors, Vor Chhuy, Tuekdoh Veal	Vine	341, 279	M
<i>Hopea odorata</i> Roxb.	Dipterocarpaceae	Korki	Tree	640, 14	Ma
<i>Hoya</i> sp.	Apocynaceae	Vor Krobay	Vine	416	E
<i>Hydnocarpus anthelminthicus</i> Pierre ex Laness.	Achariaceae	Krorbao	Tree	335, 642	M, F
<i>Hydnocarpus ilicifolia</i> King (unresolved name)	Achariaceae	Chambokkaek	Tree	922	Ma
<i>Hymenocardia punctata</i> Wall. ex Lindl.	Phyllanthaceae	Komkhneang	Tree	185, 120, 619, 614	M, F, Fu
<i>Hymenodictyon orixense</i> (Roxb.) Mabb.	Rubiaceae	Ovlok	Tree	299, 284, 587, 77, 72	M, F
<i>Imperata cylindrica</i> (L.) Raeusch.	Poaceae	Sbaupleang	Herb	600, 778	M, Ma
<i>Indigofera tinctoria</i> L.	Leguminosae	Trom Prey	Shrub	121	M
<i>Irvingia malayana</i> Oliv. ex A.W.Benn.	Irvingiaceae	Chombork	Tree	161, 671, 474, 22, 170	M, F, Ma, Fu
<i>Ixora javanica</i> (Blume) DC.	Rubiaceae	Pkakroham	Shrub	549, 440, 91	M, F
<i>Ixora nigricans</i> R.Br. ex Wight & Arn.	Rubiaceae	Pkamuchol	Shrub	87PR	M
<i>Ixora</i> sp.	Rubiaceae	Chhongkonghing	Shrub	103	M
<i>Jasminum scandens</i> (Retz.) Vahl	Oleaceae	Vor Chuengpoh	Vine	485B	M
<i>Lagerstroemia calyculata</i> Kurz	Lythraceae	Sralao'	Tree	317, 584, 34	M, Ma, F, Fu
<i>Lagerstroemia floribunda</i> Jack (unresolved name)	Lythraceae	Trobekprey	Tree	125	M
<i>Lagerstroemia ovalifolia</i> Teijsm. & Binn. (unresolved name)	Lythraceae	Sralao' Trobek	Tree	503, 663	F, Ma
<i>Lagerstroemia speciosa</i> (L.) Pers.	Lythraceae	Kraol	Tree	345, 330, 447, 500, 634	M, Ma, E
<i>Lasianthus hirsutus</i> (Roxb.) Merr.	Rubiaceae	Skun	Shrub	150, 649, 650	M
<i>Leea indica</i> (Burm. f.) Merr.	Vitaceae	Baykdaing, Kandan Bay	Shrub	564	M, S
<i>Leea thorelii</i> Gagnep.	Vitaceae	Lounglang	Tree	361.2	M
<i>Lepisanthes rubiginosa</i> (Roxb.) Leenh.	Sapindaceae	Chunlous, Tumlos	Tree	166, 4, 938, 949	M, F
<i>Licuala spinosa</i> Wurm	Arecaceae	Paav	Palm	903, 169, 146, 397, 399	F, Ma
<i>Limnophila geoffrayi</i> Bonati (unresolved name)	Plantaginaceae	Ma Orm	Herb	833	M, F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Limnophila</i> sp.	Plantaginaceae	Bror Mae	Herb	836	F
<i>Loeseneriella pauciflora</i> (DC.) A.C. Sm. (unresolved name)	Celastraceae	Vor Angtong	Vine	660	M, Ma
<i>Lygodium flexuosum</i> (L.) Sw.	Lygodiaceae	Vor Trom, Vor Ovlor	Vine	176, 673, 680, 11, 779	M, Ma, RMU
<i>Machilus thunbergii</i> Siebold & Zucc.	Lauraceae	Yeangboun	Shrub	831	RMU
<i>Macroptilium atropurpureum</i> (DC.) Urb.	Leguminosae	Vor Sangdek bang-kuoy	Vine	791	
<i>Madhuca butyrospermoides</i> A.Chev.	Sapotaceae	Srorkom	Tree	475, 428	F, Ma, Fu
<i>Mallotus glabriusculus</i> (Kurz) Pax & K.Hoffm.	Euphorbiaceae	Kansamta oa	Shrub	89PR	M, F, Ma
<i>Mallotus nanus</i> Airy Shaw	Euphorbiaceae	Konsomthao	Tree	576	M
<i>Mammea siamensis</i> T.Anderson (unresolved name)	Calophyllaceae	Sophi	Tree	282	TV
<i>Mangifera longipetiolata</i> King (unresolved name)	Anacardiaceae	Svay Prey	Tree	274, 472	M, F, Ma
<i>Markhamia stipulata</i> (Wall.) Seem.	Bignoniaceae	Dakpor	Tree	137, 216	M, F
<i>Melastoma malabathricum</i> L.	Melastomataceae	Baynhenh	Shrub	119, 90, 119B	M, F
<i>Melastoma saigonense</i> (Kuntze) Merr.	Melastomataceae	Baynhenh (fem)	Shrub	399A	M
<i>Melastoma sanguineum</i> Sims	Melastomataceae	Baynhenh (male)	Shrub	401, 446, 410	M
<i>Melientha suavis</i> Pierre	Opiliaceae	Prech, Prechprey	Tree	945	F, Ma
<i>Melodorum fruticosum</i> Lour.	Annonaceae	Romduol	Tree	108, 477, 611	M, F, Fu, Ma
<i>Memecylon caeruleum</i> Jack	Melastomataceae	Phlorng	Tree	495, 8,211	Ma
<i>Microcos tomentosa</i> Sm.	Malvaceae	Porplear	Tree	225, 407	Ma, F, Fu
<i>Mimosa pudica</i> L.	Leguminosae	Phrasklob	Herb	756	M
<i>Mischocarpus</i> sp.	Sapindaceae	Promarksan	Shrub	181	M
<i>Mitragyna hirsuta</i> Hav.	Rubiaceae	Ktom, Ktomtom	Tree	355, 602	M, Ma
<i>Mitragyna speciosa</i> (Korth.) Havil.	Rubiaceae	Ktumphnom	Tree	294	M
<i>Momordica cissoides</i> Planch. ex Benth.	Cucurbitaceae	Vor M'reas Prey	Vine	832	F
<i>Morinda coreia</i> Buch.-Ham.	Rubiaceae	Nhio (Prey)	Tree	343, 334, 51, 931	M
<i>Murraya siamensis</i> Craib (unresolved name)	Rutaceae	Brohoungarkas	Shrub	232, 617, 797	M, RMU
<i>Myrialepis paradoxa</i> (Kurz) J. Dransf.	Arecaceae	Chnuo	Vine	283	Ma
<i>Myristica iners</i> Blume	Myristicaceae	Kuok	Tree	944	F, Ma
<i>Nauclea orientalis</i> (L.) L.	Rubiaceae	Kdol	Tree	601, 594, 513, 632	M, Ma
<i>Ochna integerrima</i> (Lour.) Merr.	Ochnaceae	Angkea Sel	Tree	312, 439, 384, 429B, 189A	M
<i>Ocimum tenuiflorum</i> L.	Lamiaceae	M'reas Prov	Shrub	177	F
<i>Ocotea lancifolia</i> (Schott) Mez	Lauraceae	Krolor	Tree	201	M, F
<i>Olex scandens</i> Roxb. (unresolved name)	Olacaceae	Orkkong	Vine	511	M, F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Oxyceros horridus</i> Lour.	Rubiaceae	Thnungkanhchos, Vor Sneng kropey	Shrub	250, 772, 182	M
<i>Paederia foetida</i> L.	Rubiaceae	Vor Phorm	Vine	269	F
<i>Pandanus humilis</i> Lour.	Pandanaceae	Romchekprey	Screw-pine	171, 467, 530	M, Ma
<i>Pandanus</i> sp.	Pandanaceae	Chak	Screw-pine	761	F
<i>Parinari anamensis</i> Hance	Chrysobalanaceae	Thlork	Tree	223, 204, 373SP, 374, 80	M, F
<i>Peliosanthes teta</i> Andrews	Asparagaceae	Tbaldaek, <i>Tbaltark</i>	Herb	828, 659	M, RMU
<i>Peltophorum dasyrrhachis</i> (Miq.) Kurz	Leguminosae	Torsek	Tree	94, 381SP, 432, 133, 19	Ma, F
<i>Pentacme siamensis</i> (Miq.) Kurz	Dipterocarpaceae	Reangphnom	Tree	294, 682, 60	Ma
<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Kontoutprey	Tree	349, 324, 630, 583	M, F, Fu
<i>Phyllodium pulchellum</i> (L.) Desv.	Leguminosae	Kom Prum Bae Kroy	Shrub	937	M
<i>Physalis angulata</i> L.	Solanaceae	Pengposprey	Herb	271	M, F
<i>Pinus merkusii</i> Jungh. & de Vriese	Pinaceae	Srorl	Tree	535, 504	M, R
<i>Piper sarmentosum</i> Roxb.	Piperaceae	Chhiplou	Herb	259	F
<i>Ploiarium alternifolium</i> (Vahl) Melch.	Bonnetiaceae	Sreung	Tree	631, 544	Ma
<i>Polyalthia cerasoides</i> (Roxb.) Bedd.	Annonaceae	<i>Knaydael</i> , Snaydel	Tree	329, 615, 57	M, F, Ma
<i>Polyalthia evecta</i> Finet & Gagnep. (unresolved name)	Annonaceae	Sanghasbart	Tree	920	
<i>Premna herbacea</i> Roxb.	Lamiaceae	Ruschin	Shrub	371	M
<i>Prismatomeris filamentosa</i> Craib	Rubiaceae	Romdenhmeas	Shrub	210, 402, 189	M
<i>Prismatomeris memecyloides</i> Craib	Rubiaceae	Romdenh	Shrub	417	M, F
<i>Prismatomeris sessiliflora</i> Pierre ex Pit.	Rubiaceae	Romdenhmeas II	Shrub	55	M
<i>Psychotria asiatica</i> L.	Rutaceae	Sraomdav	Shrub	393	M, Ma
<i>Psychotria</i> sp.	Rubiaceae	Slerkreum	Shrub	531	M
<i>Psychotria</i> sp.1	Rubiaceae	Reum	Shrub	438	M
<i>Psydrax dicoccos</i> Gaertn.	Rubiaceae	Bongkorng	Tree	641	Ma
<i>Psydrax pergracilis</i> (Bourd.) Ridsdale	Rubiaceae	Mekorng	Tree	41	Ma
<i>Pternandra caerulescens</i> Jack	Melastomataceae	Changketbrak	Tree	559	F
<i>Pterocarpus macrocarpus</i> Kurz	Leguminosae	Thnong	Tree	205, 192, 487, 466	M, Ma
<i>Rhodamnia dumetorum</i> (DC.) Merr. & L.M.Perry	Myrtaceae	Plorng (Uol)	Shrub	539, 815	F
<i>Rhodomyrtus tomentosa</i> (Aiton) Hassk.	Myrtaceae	Pouch Uol, Trobek-prey	Shrub	541, 508	F
<i>Rinorea anguifera</i> Kuntze (unresolved name)	Violaceae	Dom Nek Pro Ma	Tree	136	M
<i>Salacia chinensis</i> L.	Celastraceae	Pengphorng, Vorveay	Vine	32, 400, 543, 313	M, F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Salacia cochinchinensis</i> Lour.	Celastraceae	Vor Kondab-chongae	Vine	256	M, F
<i>Salacia typhina</i> Pierre (unresolved name)	Celastraceae	Kon Darb Jong Ae	Vine	924	M, F
<i>Sandoricum koetjape</i> (Burm. f.) Merr.	Meliaceae	Kompinhreach	Tree	823	M, Ma, F
<i>Sauropus</i> sp.	Phyllanthaceae	Thmehntrey	Shrub	249	M
<i>Schleichera oleosa</i> (Lour.) Merr.	Sapindaceae	Pongror, Tomroos, Ta Tok	Tree	902, 37, 291, 913	M, F, Fu, Ma
<i>Scindapsus officinalis</i> (Roxb.) Schott	Araceae	Vor Chum	Vine	272	M
<i>Scleropyrum pentandrum</i> (Denn.) Mabb.	Santalaceae	Rlokkeo, Aola-okkao	Tree	529, 524, 141	M
<i>Senna alata</i> (L.) Roxb.	Leguminosae	Donghet	Shrub	88, 763	M, F
<i>Senna garrettiana</i> (Craib) H.S.Irwin & Barneby	Leguminosae	Haisan	Tree	67	M
<i>Shorea guiso</i> Blume	Dipterocarpaceae	Chorchong, Pchuek Aodom	Tree	215, 154, 635, 662, 829	R, Ma
<i>Shorea obtusa</i> Wall. ex Bl. (unresolved name)	Dipterocarpaceae	Pchek	Tree	361.1, 328, 59	M, Ma
<i>Shorea roxburghii</i> G. Don	Dipterocarpaceae	Porpael	Tree	219, 296, 377SP, 386, 48	Ma, F
<i>Sindora siamensis</i> Miq.	Leguminosae	Korkoh	Tree	298, 682, 60	M, Ma, F
<i>Smilax lanceifolia</i> Roxb.	Smilacaceae	Porpreus, Vor Porpeay	Vine	130	M
<i>Smilax megacarpa</i> A. DC.	Smilacaceae	Porpreus, Vor Rombers	Vine	131, 525, 550, 663V, 672, 817	M, F
<i>Smilax</i> sp.	Smilacaceae	Vor Thnamchin	Vine	825	M
<i>Spatholobus acuminatus</i> Benth.	Leguminosae	Vor Tar Arn	Vine	236, 942	M, Ma, F
<i>Spirolobium cambodianum</i> Baill.	Apocynaceae	Chhertheal trang (young), Preay Kbalbromboy (old)	Tree	644, 827, 532	M, CDD, F
<i>Spondias pinnata</i> (L. f.) Kurz	Anacardiaceae	Mkark prey, <i>Phloch</i>	Tree	157, 234, 684, 754, 909, 754	M, F, FA, Ma
<i>Stemona</i> sp.	Stemonaceae	Kbeas	Shrub	263, 114	M
<i>Stenochlaena palustris</i> (Burm. f.) Bedd.	Blechnaceae	Vor Thnanh	Vine	127, 577, 777	M, F, Ma
<i>Sterculia</i> sp.	Malvaceae	Prorlob	Tree	688	Ma
<i>Streblus asper</i> Lour.	Moraceae	Snay	Tree	609, 604	M
<i>Streptocaulon juvenas</i> (Lour.) Merr.	Apocynaceae	Vor Chuy, Vor Joch	Vine	339, 509, 396	M
<i>Strychnos nux-blanda</i> A.W. Hill	Loganiaceae	Kompolvek	Tree	389PR	M
<i>Strychnos nux-vomica</i> L.	Loganiaceae	Sleng	Tree	306	M
<i>Strychnos polyantha</i> Pierre ex Dop	Loganiaceae	Vor Sleng	Vine	518, 281	M
<i>Suregada multiflora</i> (A.Juss.) Baill.	Euphorbiaceae	Markdaok	Tree	490	M, F
<i>Syzygium fruticosum</i> DC.	Myrtaceae	Pring Angkam	Tree	953	M, F, Fu
<i>Syzygium grande</i> (Wight) Walp.	Myrtaceae	Pring Som Bork Krars	Tree	153, 387SP, 816	M, F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Syzygium siamense</i> (Craib) Chantaran. & J.Parn.	Myrtaceae	Pring Kbal Nakta	Tree	943	M, Ma
<i>Syzygium</i> sp.	Myrtaceae	Smarch Tuk	Tree	557	F
<i>Syzygium syzygioides</i> (Miq.) Merr. & L.M.Perry	Myrtaceae	Pring Bay	Tree	81, 811	M, Ma, F
<i>Syzygium zeylanicum</i> (L.) DC.	Myrtaceae	Smarch	Tree	163, 190, 419, 404, 30	M, F, Ma, Fu
<i>Tabernaemontana bufalina</i> Lour.	Apocynaceae	Matesprey	Tree	534, 766	M
<i>Tadehagi triquetrum</i> (L.) H.Ohashi	Leguminosae	Angkrorng, Chang Kes Angkrorng	Shrub	167, 126, 332	M
<i>Tamarindus indica</i> L.	Leguminosae	Ampil	Tree	VS2	M
<i>Tamilnadia uliginosa</i> (Retz.) Tirv. & Sastre	Rubiaceae	Rompok	Tree	292	M
<i>Tarenna hoaensis</i> Pit.	Rubiaceae	Chantornear	Shrub	527	M, Ma
<i>Terminalia alata</i> Roth (unresolved name)	Combretaceae	Chhlik	Tree	61	M, Ma
<i>Terminalia bialata</i> (Roxb.) Steud.	Combretaceae	Pealkhe, Porpa-elkae	Tree	1, 596	M
<i>Terminalia chebula</i> Retz.	Combretaceae	Sramor, Sormor Lau	Tree	351, 933	M, F, Ma
<i>Terminalia mucronata</i> Craib & Hutch. (unresolved name)	Combretaceae	Bramdomleng	Tree	357, 431, 498, 52	M, Ma
<i>Terminalia nigrovenulosa</i> Pierre	Combretaceae	Bayarm	Tree	599, 646, 28	M, F, Ma, Fu
<i>Terminalia pierrei</i> Gagnep. (unresolved name)	Combretaceae	Sev	Tree	751	M
<i>Tetracera loureiri</i> (Finet & Gagnep.) Pierre ex W.G. Craib	Dilleniaceae	Vor Dakun	Vine	113, 206, 128, 443, 378	M
<i>Thunbergia</i> sp.	Acanthaceae	Vor Dakpor	Vine	63	M
<i>Thyrsanthera suborbicularis</i> Pierre ex Gagnep.	Euphorbiaceae	Rus Bong Ki, Vongsa Preahatit	Vine	929, 752	M
<i>Tiliacora triandra</i> Diels (unresolved name)	Menispermaceae	Vor Yeav	Vine	568	Ma, F, Fu
<i>Tinospora crispa</i> (L.) Hook. f. & Thomson	Menispermaceae	Bondolpich	Vine	86	M
<i>Tristanopsis merguensis</i> (Griff.) Peter G.Wilson & J.T.Waterh.	Myrtaceae	Srongam	Tree	506	Ma
<i>Urceola rosea</i> (Hook. & Arn.) Midd.	Apocynaceae	Mchoo Tneng, Vor Tneng	Vine	936	F
<i>Uvaria fauveliana</i> Pierre ex Ast (unresolved name)	Annonaceae	Saomaoprey	Vine	186, 575	M, F, Ma
<i>Uvaria hahnii</i> (Finet & Gagnep.) J.Sinclair (unresolved name)	Annonaceae	Songkhouch	Vine	261, 258, 548	M, F
<i>Uvaria rufa</i> Blume	Annonaceae	Treal Sva	Vine	97, 750	F
<i>Uvaria</i> sp.	Annonaceae	Vor Doskrobey, Vor Treal, Teu Doh Krobai	Vine	262, 792	M, F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
<i>Uvaria littoralis</i> (Blume) Blume	Annonaceae	Vor Chekprey	Vine	765	M, F
<i>Vatica odorata</i> (Griff.) Symington	Dipterocarpaceae	Chormas	Tree	385SP, 558, 27	Ma, F
<i>Ventilago cristata</i> Pierre (unresolved name)	Rhamnaceae	Vor Tonlueng	Vine	638	M, Ma
<i>Vitex pinnata</i> L.	Lamiaceae	Porpool	Tree	304, 427, 522, 54	M
<i>Vitex</i> sp.	Lamiaceae	Protespray	Shrub	224	M, RMU
<i>Walsura villosa</i> Wall. ex Hiern	Meliaceae	Sdok Sdao	Tree	928	M
<i>Waltheria indica</i> L.	Malvaceae	Preash Proa Veal	Shrub	89	M
<i>Willughbeia edulis</i> Roxb.	Apocynaceae	Koy	Vine	155, 389SP, 408	M, F
<i>Wrightia arborea</i> (Dennst.) Mabb.	Apocynaceae	Klengkong	Tree	3	M
<i>Xanthophyllum colubrinum</i> Gagnep.	Polygalaceae	Trop Tum	Tree	514, 545, 776	F, Ma
<i>Xerospermum noronhianum</i> (Blume) Blume	Sapindaceae	Mean Angkarm, Seman	Tree	135, 106, 657, 420, 917	F, Fu
<i>Xylia xylocarpa</i> (Roxb.) Taub.	Leguminosae	Sokrom	Tree	301, 280, 591, 17	M, Ma
<i>Xylopiia pierrei</i> Hance (unresolved name)	Annonaceae	Kray Sor	Tree	212, 403, 394, 911	M, RMU, Ma, Fu
<i>Xylopiia vielana</i> Pierre	Annonaceae	Kray Krahorm	Tree	901	M, Fu
<i>Zanthoxylum nitidum</i> (Roxb.) DC.	Rutaceae	Preah Kom Jart	Tree	605, 276, 586, 760	M, F, CDD
<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm.	Zingiberaceae	Phtue	Herb	908	F
<i>Ziziphus cambodianus</i> Pierre (unresolved name)	Rhamnaceae	Vor Angkrong	Vine	20, 616	M, S, Ma
<i>Ziziphus oenopolia</i> (L.) Mill.	Rhamnaceae	Vor Sangkher	Vine	566, 555, 187, 178, 33	M, F
-	Acanthaceae	Bromatksan	Tree	180	M
-	Apocynaceae	Vor Preah Trorheng	Vine	696	M
-	Araceae	Vor Prork	Vine	767	Ma
-	Asclepiadaceae	Vor Chlous	Vine	554	Ma
-	Leguminosae	Sombour II	Tree	839	RMU
-	Primulaceae	Vor Preah Samkong	Vine	925	M
-	Rubiaceae	Lout	Tree	540	Ma
-	Scrophulariaceae	S'mao Kreung	Herb	820	F
-	-	Derm Kon Tuy Mian	Herb	Photo	M
-	-	Dermprus	Tree	-	Ma
-	-	K'Cheay	Shrub	-	F
-	-	K'Dourch	Vine	-	F
-	-	Kachdek	Tree	-	Ma
-	-	Khchaeng, Krorcheng	Tree	Photo	Ma, TV, F
-	-	Kom Pong Tro aoh	Tree	-	F
-	-	Korkithmor	Tree	-	Ma
-	-	Kramuon	Tree	-	M, F

Appendix 1 Cont'd

Scientific name	Family	Ethnospecies name	Life form	Voucher No.	Use(s)
-	-	Krasaeang	Tree	-	M, F
-	-	Krolanh	Tree	-	M, Ma
-	-	Krorlunch	Tree	-	F
-	-	Lovear dei	Shrub	Photo	M
-	-	Lumpoung	Tree	-	M
-	-	Mermchin	-	-	M
-	-	Ploo	Tree	923	M, F, Fu
-	-	Pouk	Shrub	-	Ma
-	-	Preah Oproveal	Tree	-	M
-	-	Preah Trorheng	Tree	-	M, RMU, F
-	-	Proteng	Herb	379PR	M, F, Ma
-	-	Ptheark	Tree	-	Ma
-	-	Ro Ngoung	Tree	-	RMU
-	-	Rodong	Tree	-	M
-	-	Rompukrorhorm	Tree	-	M, Ma, F
-	-	Rumduol Sbart	Shrub	-	M
-	-	Russey	Shrub	-	F, Ma
-	-	Russlar	-	-	M, S
-	-	Sluekprich	-	-	F
-	-	Smarkrorbey	Tree	-	M, F
-	-	Spong	Tree	-	M, Ma
-	-	Sro Kum Bay	Tree	819	F
-	-	Svarkhom	Tree	-	M
-	-	Tha'Kao	Tree	-	Fu
-	-	Thnenn	Vine	577, 127	F
-	-	Trameng	Tree	-	M
-	-	Treal Var/ Kon Treal Var	Vine	-	F
-	-	Trouyprich	Tree	-	F
-	-	Tuntreankhet	Shrub	-	M, E
-	-	Vor K'morng	Vine	Photo	TV
-	-	Vor Lanchoeung	Vine	929	Ma
-	-	Vor Pouh Vien Mean	Vine	252	M
-	-	Vor Tasan	Vine	-	Ma